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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/787,510	02/26/2004	Robert F. Steimle	SC13130TP	6478

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FREESCALE SEMICONDUCTOR, INC.
LAW DEPARTMENT
7700 WEST PARMER LANE MD:TX32/PL02
AUSTIN, TX 78729

EXAMINER

KESHAVAN, BELUR V

ART UNIT PAPER NUMBER

2823

DATE MAILED: 06/22/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/787,510

Applicant(s)

STEIMLE ET AL



Examiner

Belur V. Keshavan

Art Unit

2823

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 15-29 is/are allowed.
- 6) ☐ Claim(s) 1 and 4-10 is/are rejected.
- 7) ☐ Claim(s) 11-14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status Of Claims

Claims 1 and 3-29 are in the application. Claim 2 is canceled. Claims 1, 3, 4 and 9 are amended.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 3, 4, 6, 8, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Chindalore et al. (US 2004/0266107 A1), hereinafter Chindalore.

Regarding claims 1, 3, 6 and 8, Chindalore discloses, in figures 6 and 7 and in paragraphs [0030] and [0031], a method comprising: providing a semiconductor substrate (64) comprising a periphery region (70) and a nanoclusters region (66); forming a sacrificial layer (72) comprising an oxide overlying a first portion of the

semiconductor substrate in the periphery region wherein a material of the sacrificial layer is selected such that the plurality of nanoclusters are selectively removable with respect to the sacrificial layer; forming an layer (72) overlying a second portion of the semiconductor substrate; forming a plurality of nanoclusters (76) overlying the sacrificial layer in the periphery region and overlying the semiconductor substrate in the nanoclusters region; removing at least the plurality of nanoclusters overlying the sacrificial layer in the periphery region; and removing the sacrificial layer.

Regarding claim 4, Chindalore discloses, in figure 11 and in paragraphs [28] and [31], forming a nanoclusters device (50) in the nanoclusters region and forming a non-nanocluster device in the periphery region (70).

Regarding claims 9 and 10, Chindalore discloses in figures 6 and 7 and in paragraphs [0030] and [0031], a method, comprising: providing a semiconductor substrate (64); forming a sacrificial layer (72) overlying a first portion of the semiconductor substrate by depositing an oxide-containing layer (72) over the semiconductor substrate comprising a pad oxide; forming an oxide layer (72) overlying a second portion of the semiconductor substrate; forming a plurality of nanoclusters (76) overlying the sacrificial layer and the oxide layer; removing at

least the plurality of nanoclusters overlying the sacrificial layer; and removing the sacrificial layer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chindalore in view of Steimle et al. (US 2005/0059213 A1).

Regarding claim 5, Chindalore discloses claim 1 as above except for the thickness of the sacrificial layer being at least 10 nanometers. Steimle teaches in paragraph [0029] that thickness of the sacrificial layer can be 50 nanometers or any other thickness depending on the embodiment. It would have been obvious to one of ordinary skill in the art to use the teachings of Steimle to modify the method of Chindalore in forming the sacrificial layer with the objective to have thicker sacrificial layer at least 10 nanometers.

Regarding claim 7, Chindalore discloses claim 1 as above but lacks sacrificial layer comprising an oxide, which etches faster than a thermal oxide. Steimle teaches such an oxide in the sacrificial layer formed by CVD technique, in paragraph [0029]. It would have been obvious to one of ordinary skill in the art to use the teachings of Steimle to modify the method of Chindalore in forming the sacrificial oxide with the object to have a fast etching oxide.

Allowable Subject Matter

Claims 11-14 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Claims 15-29 are allowed.

The following is statement of reasons for the indication of allowable subject matter:

The invention is related to a processing of semiconductors having nanoclusters. The primary reason for the indication of the allowability of claims 11-14 and 15-29 is the inclusion therein, in combination as currently claimed, of the limitation of the method of processing semiconductors having nanoclusters.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Belur V. Keshavan whose telephone number is 571-272-1894. The examiner can normally be reached on 8-4:30 Monday to Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on 571-272-1855. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BVK. *bvk*
June 14, 2005.



W. DAVID COLEMAN
PRIMARY EXAMINER